

Missouri River Basin Water Management Spring 2011 Public Meetings

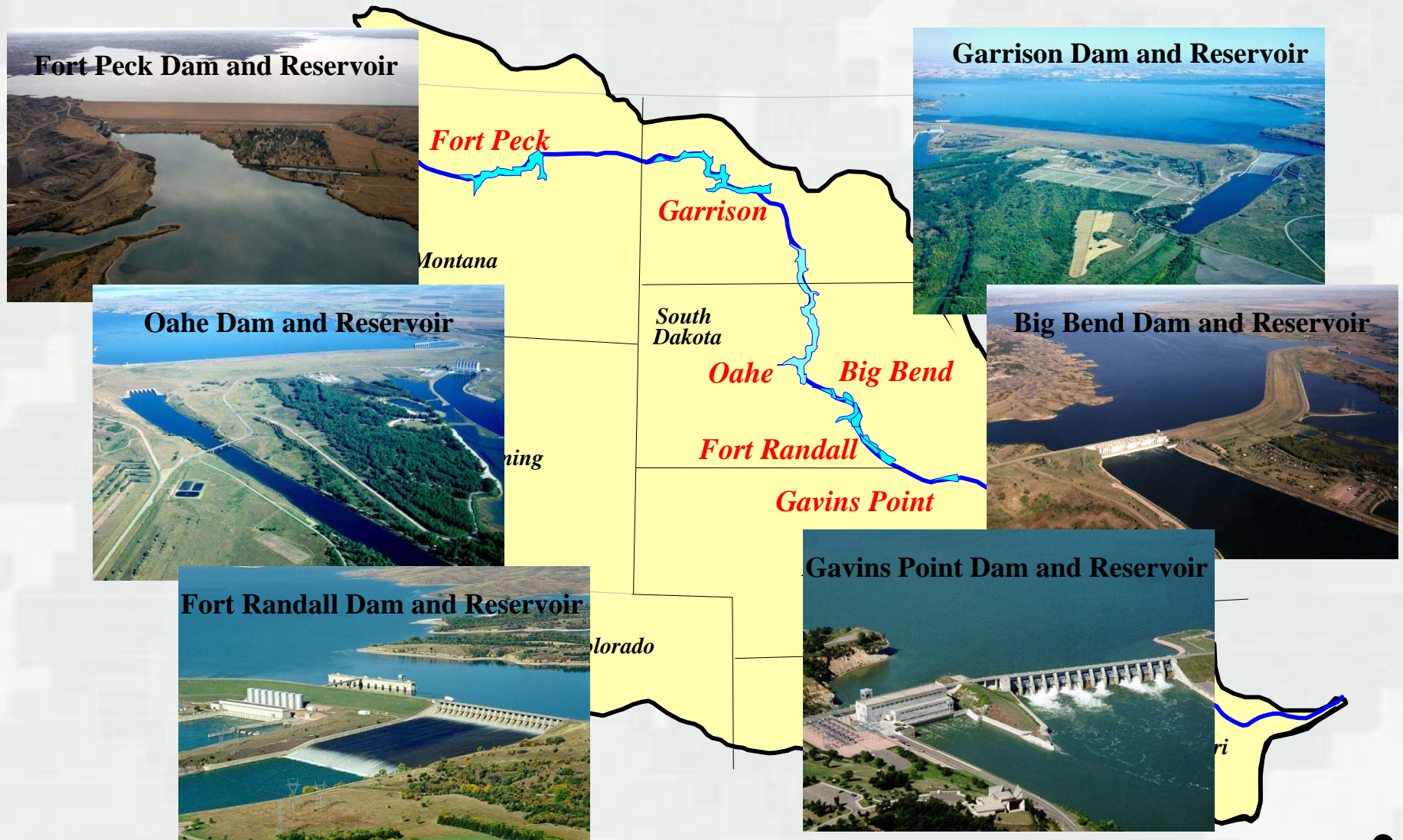
April 12 th	11:00 a.m.	Nebraska City, NE
April 12 th	7:00 p.m.	Fort Peck, MT
April 13 th	1:00 p.m.	Bismarck, ND
April 13 th	7:00 p.m.	Pierre, SD
April 14 th	1:00 p.m.	Jefferson City, MO
April 14 th	7:00 p.m.	Kansas City, MO



US Army Corps of Engineers
BUILDING STRONG®



Missouri River Mainstem Reservoir System



Our Mission

Regulate Missouri River Mainstem Reservoirs to Support Congressionally Authorized Purposes

Flood Control



Hydropower



Water Supply



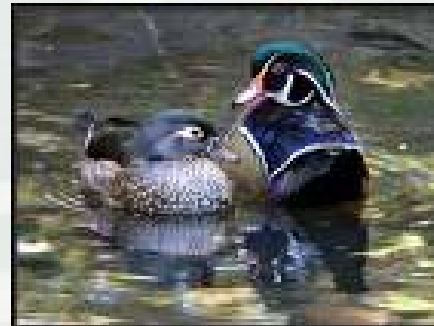
**Water Quality
Control**



Recreation



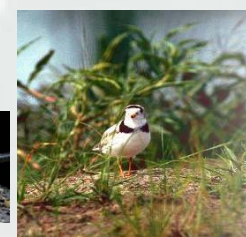
Navigation



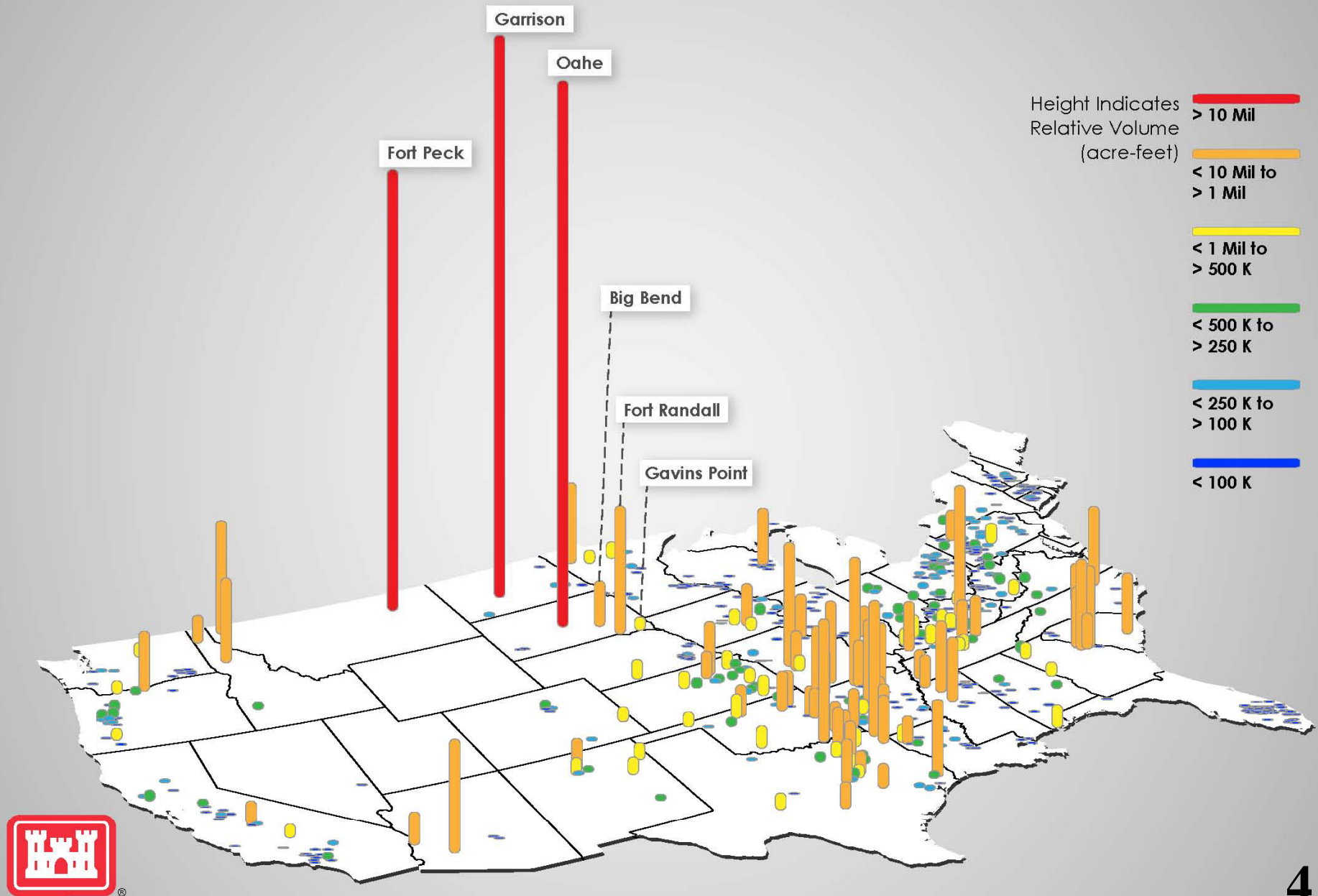
**Fish and Wildlife
Including Threatened and
Endangered Species**



Irrigation

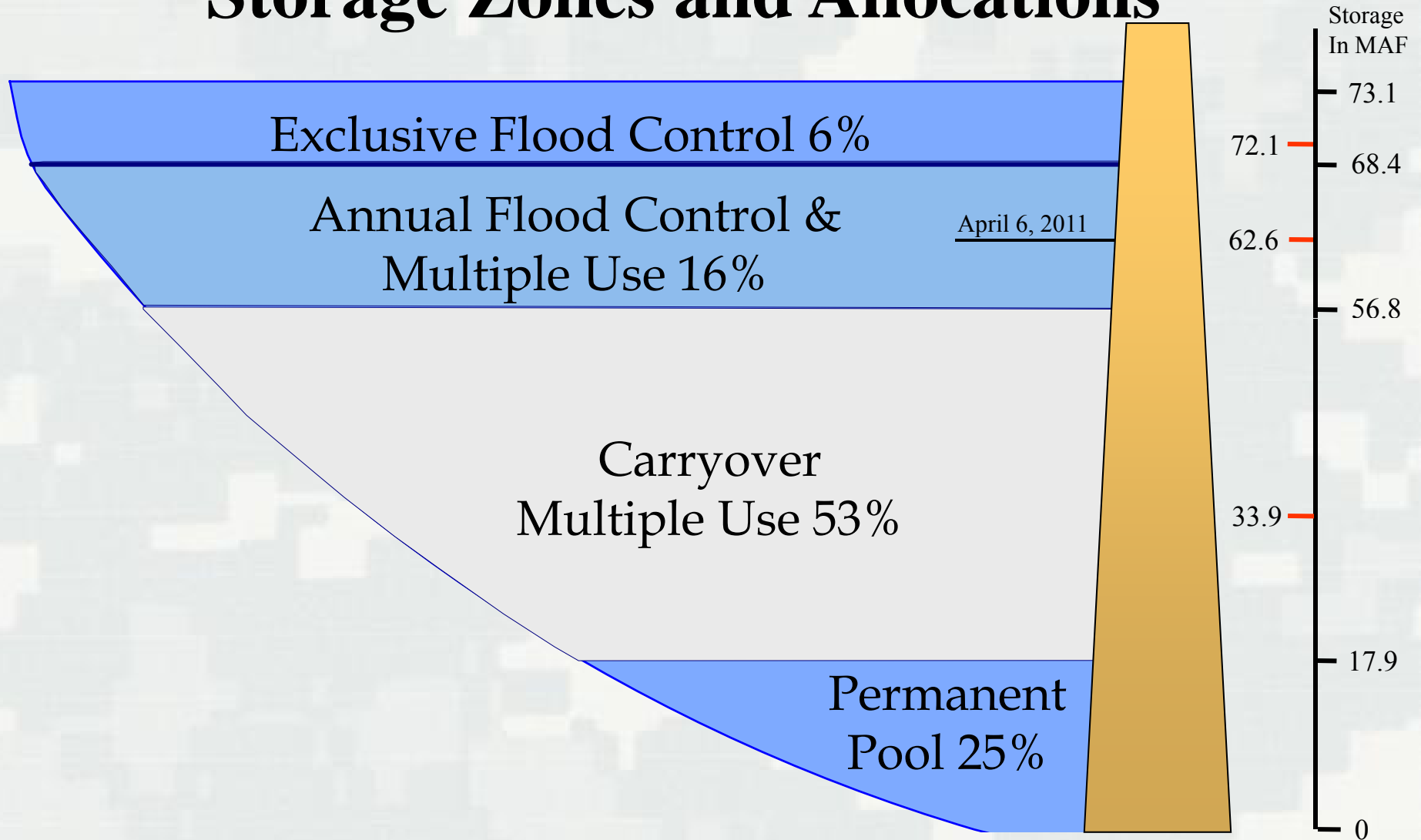


Storage Capacity of Corps Reservoirs

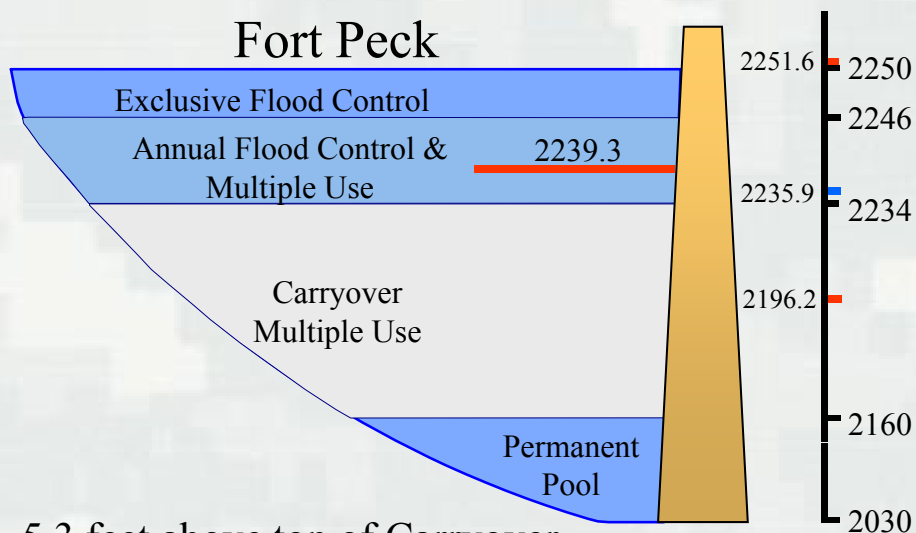


US Army Corps of Engineers
BUILDING STRONG

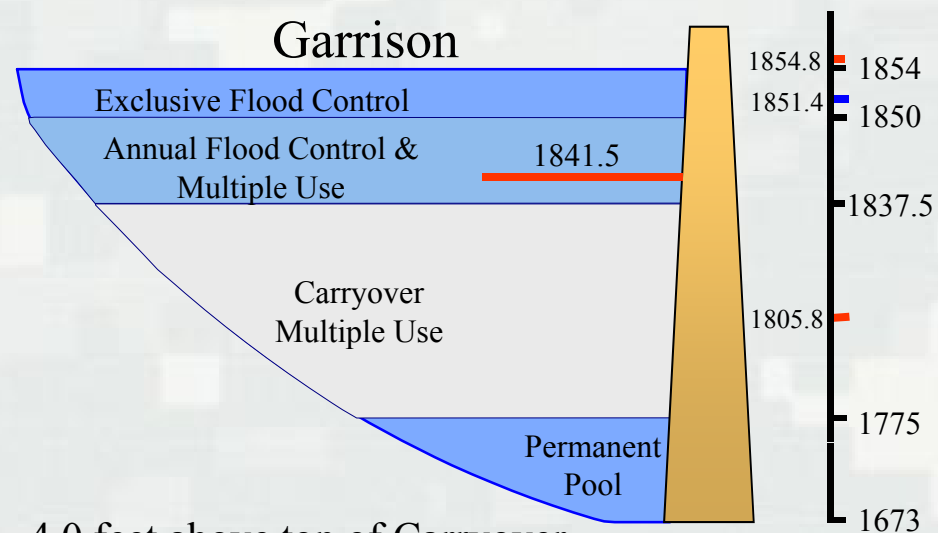
Missouri River Mainstem System Storage Zones and Allocations



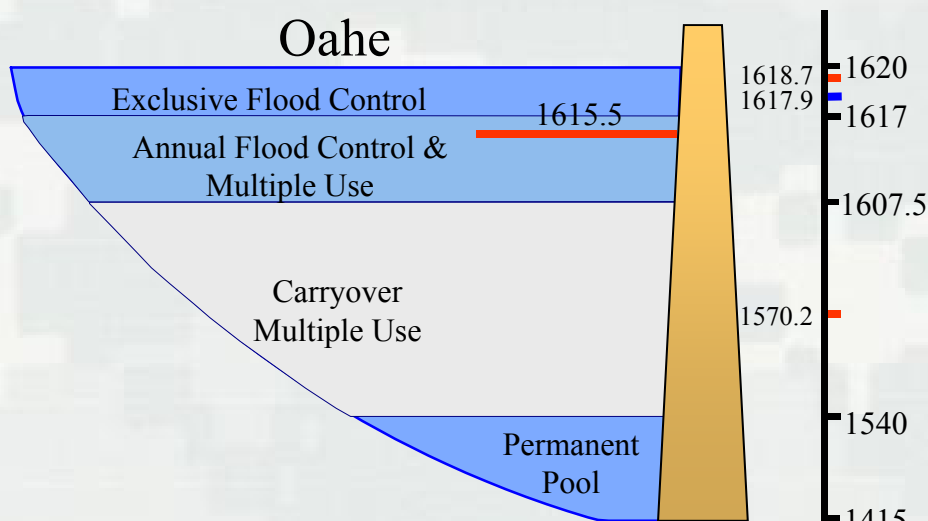
Current Reservoir Levels – April 6, 2011



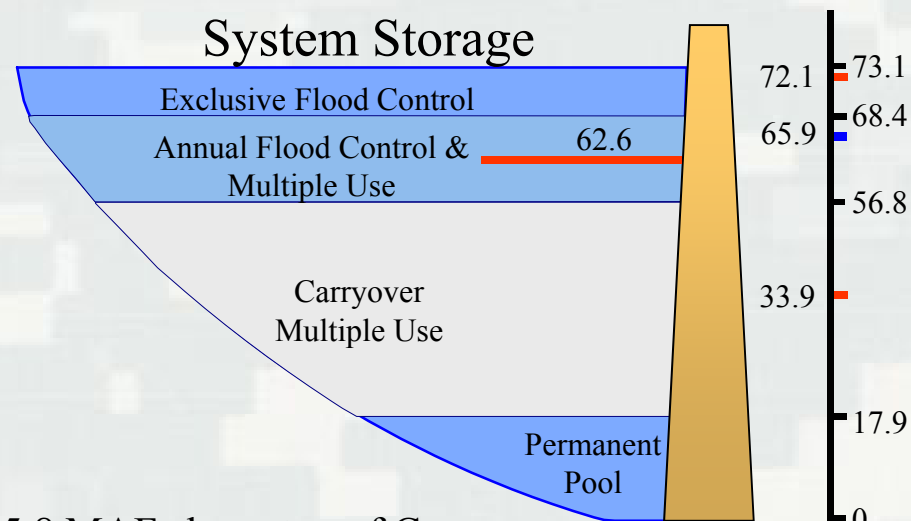
5.3 feet above top of Carryover



4.0 feet above top of Carryover

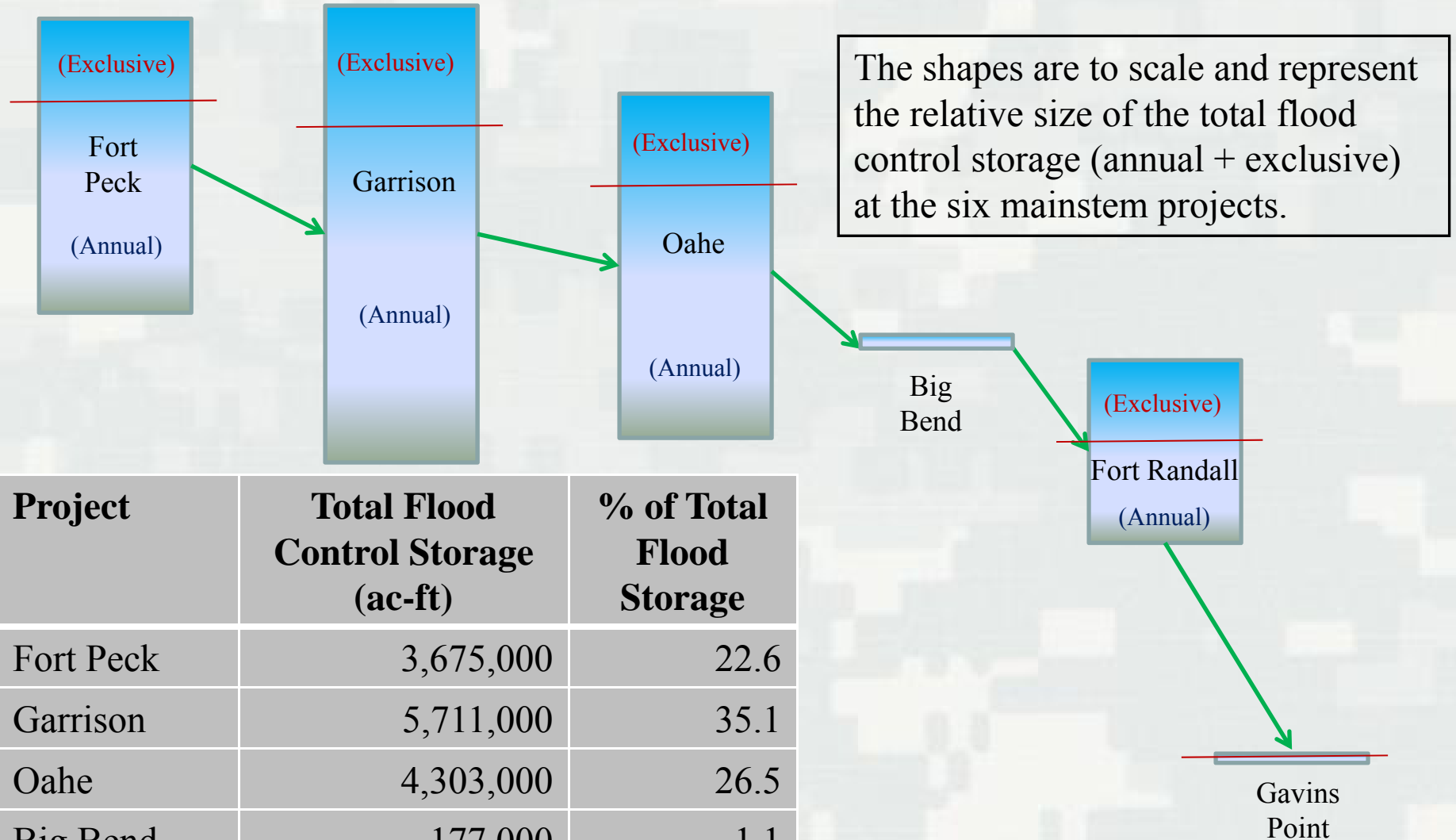


8.0 feet above top of Carryover



5.8 MAF above top of Carryover

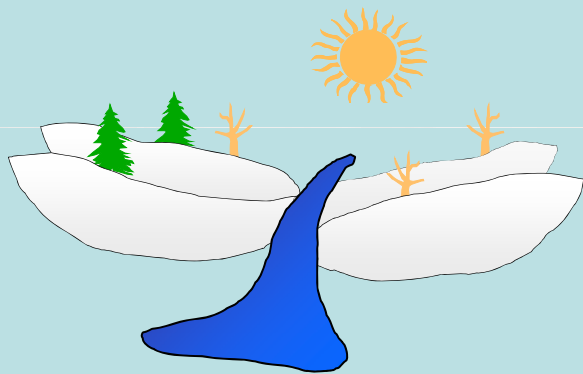
Flood Control Storage



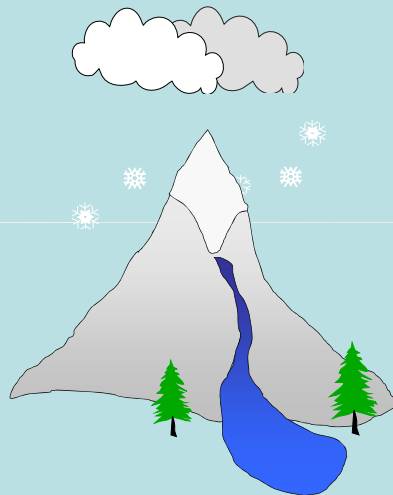
Project	Total Flood Control Storage (ac-ft)	% of Total Flood Storage
Fort Peck	3,675,000	22.6
Garrison	5,711,000	35.1
Oahe	4,303,000	26.5
Big Bend	177,000	1.1
Fort Randall	2,294,000	14.1
Gavins Point	108,000	0.7

Runoff Components

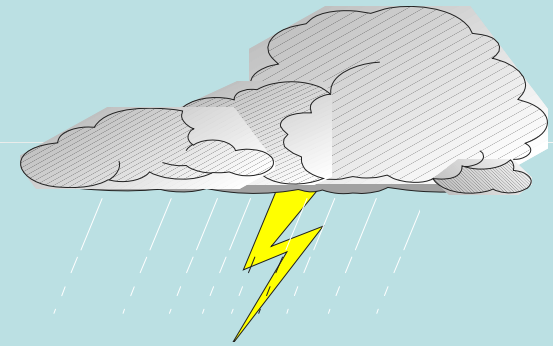
Plains Snowpack



Mountain Snowpack



Rainfall



March and
April

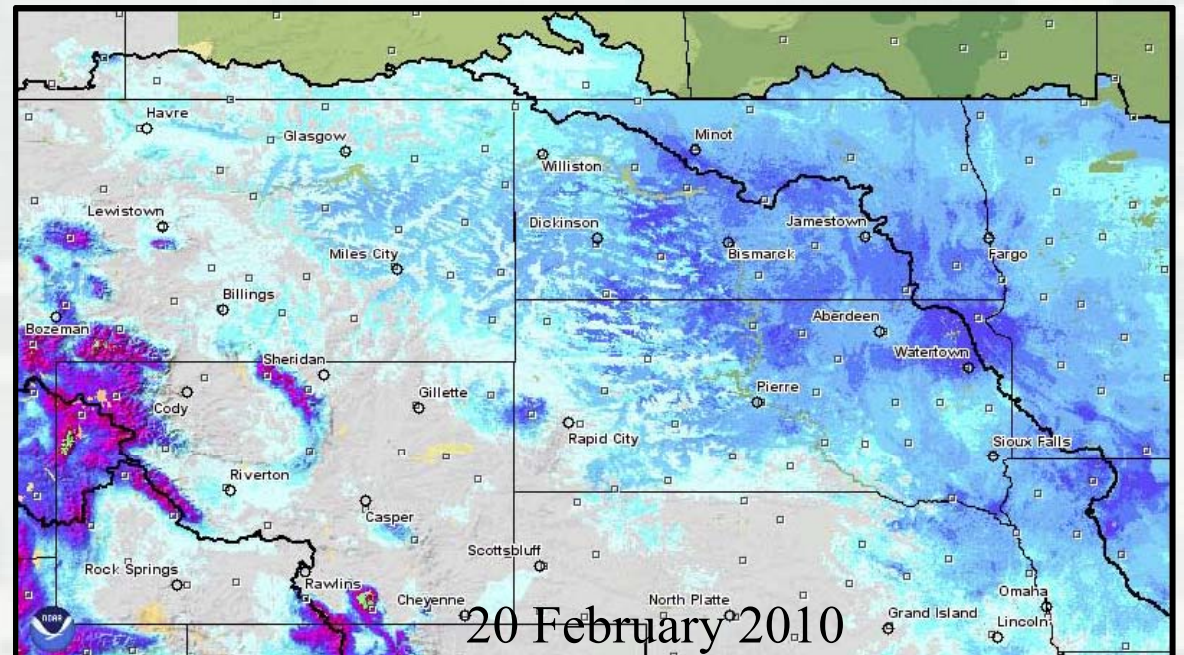
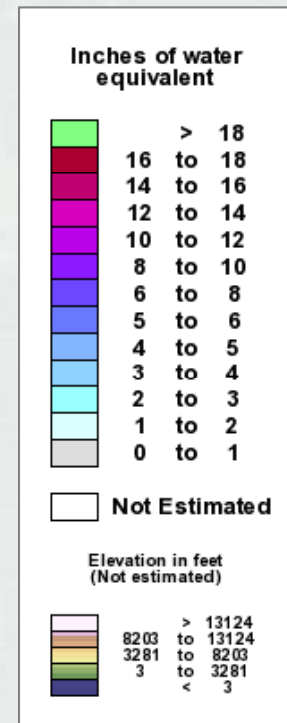
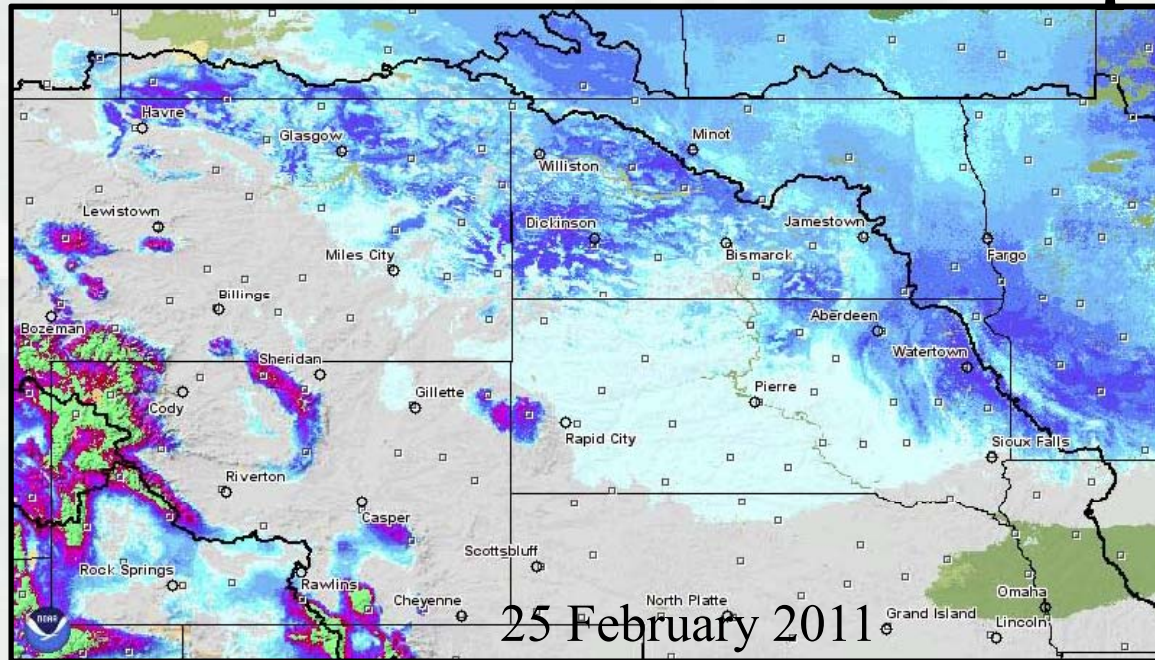
May, June
and July

March through
October

2011 Forecast* = 33.8 MAF

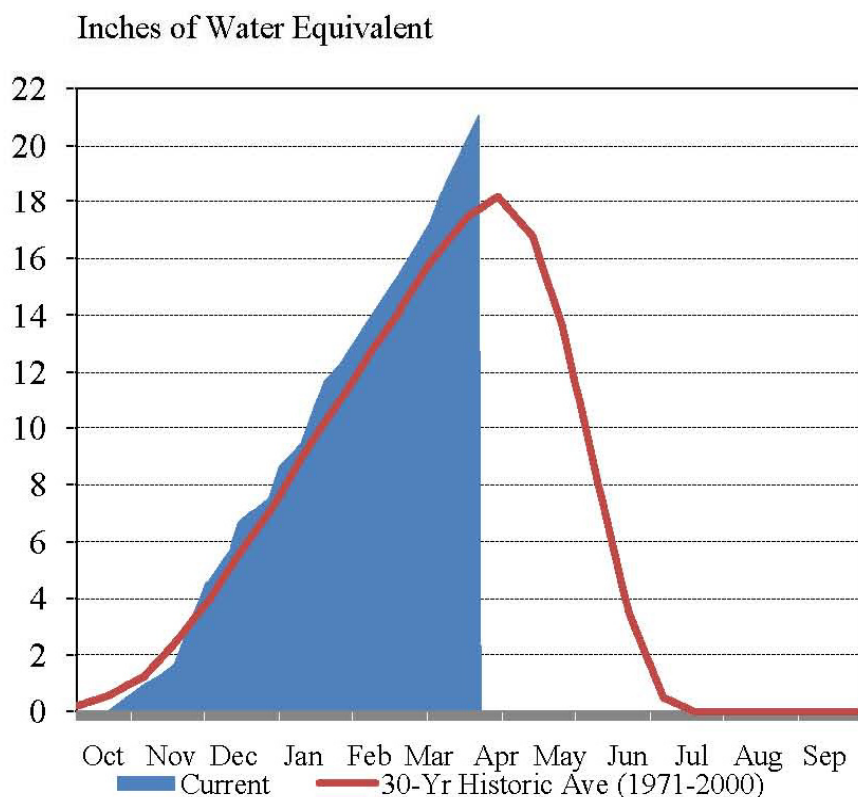
*April 1 Forecast

Plains Snowpack

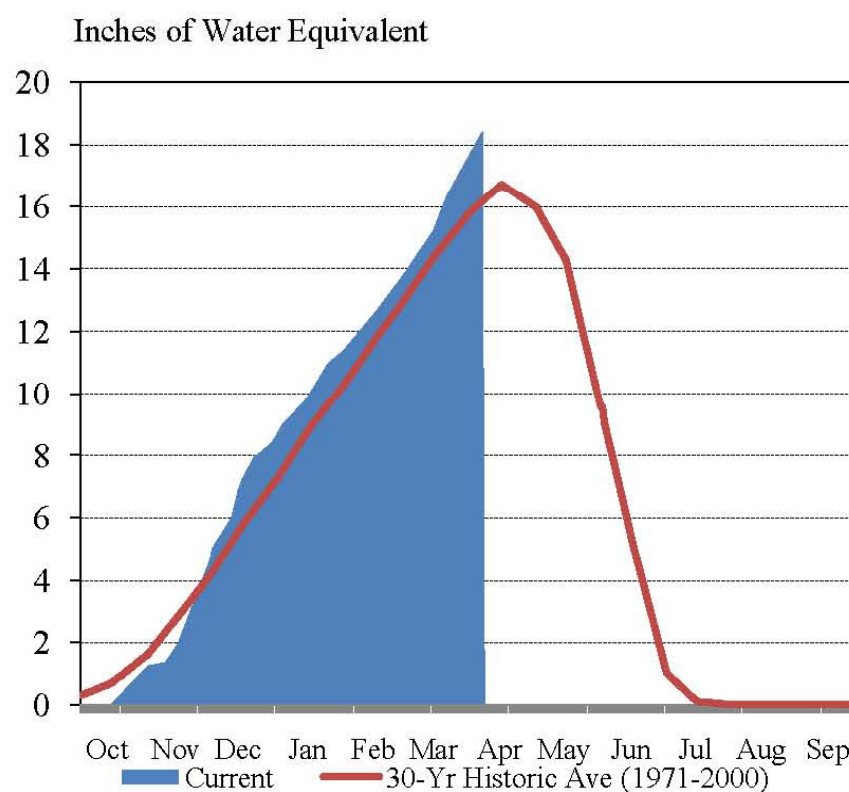


Missouri River Basin Mountain Snowpack Water Content 2010-2011

Total above Fort Peck



Total Fork Peck to Garrison



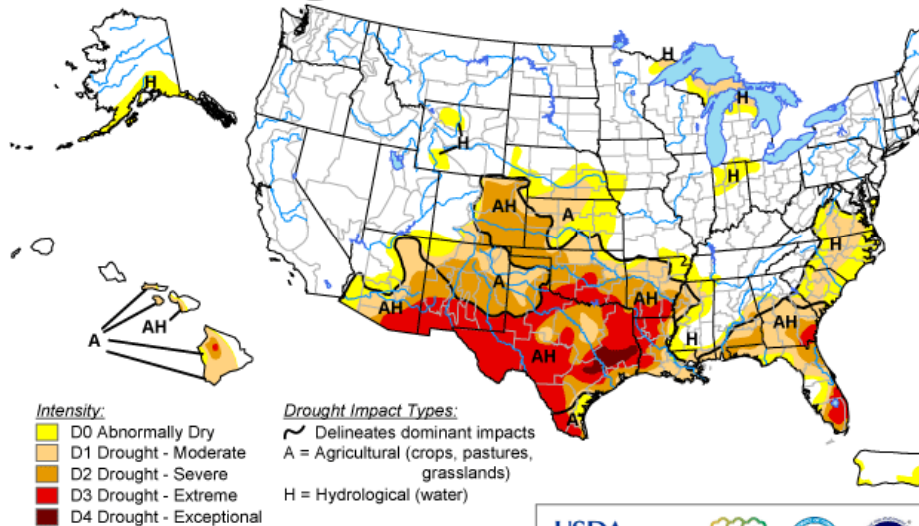
Missouri River Basin Mountain Snowpack normally peaks near April 15.
Normally 96 percent of the peak accumulation has occurred by April 1.

THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID AMJ 2011
MADE 17 MAR 2011

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

U.S. Drought Monitor

April 5, 2011
Valid 8 a.m. EDT

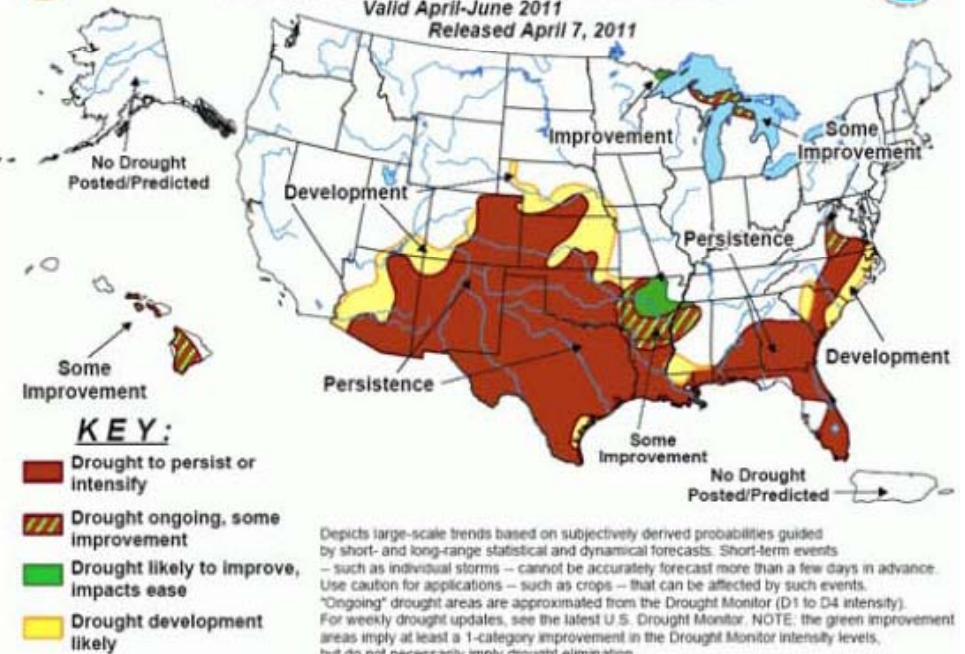


Released Thursday, April 7, 2011

Author: Mark Svoboda, National Drought Mitigation Center

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid April-June 2011
Released April 7, 2011



Annual Runoff above Sioux City, IA

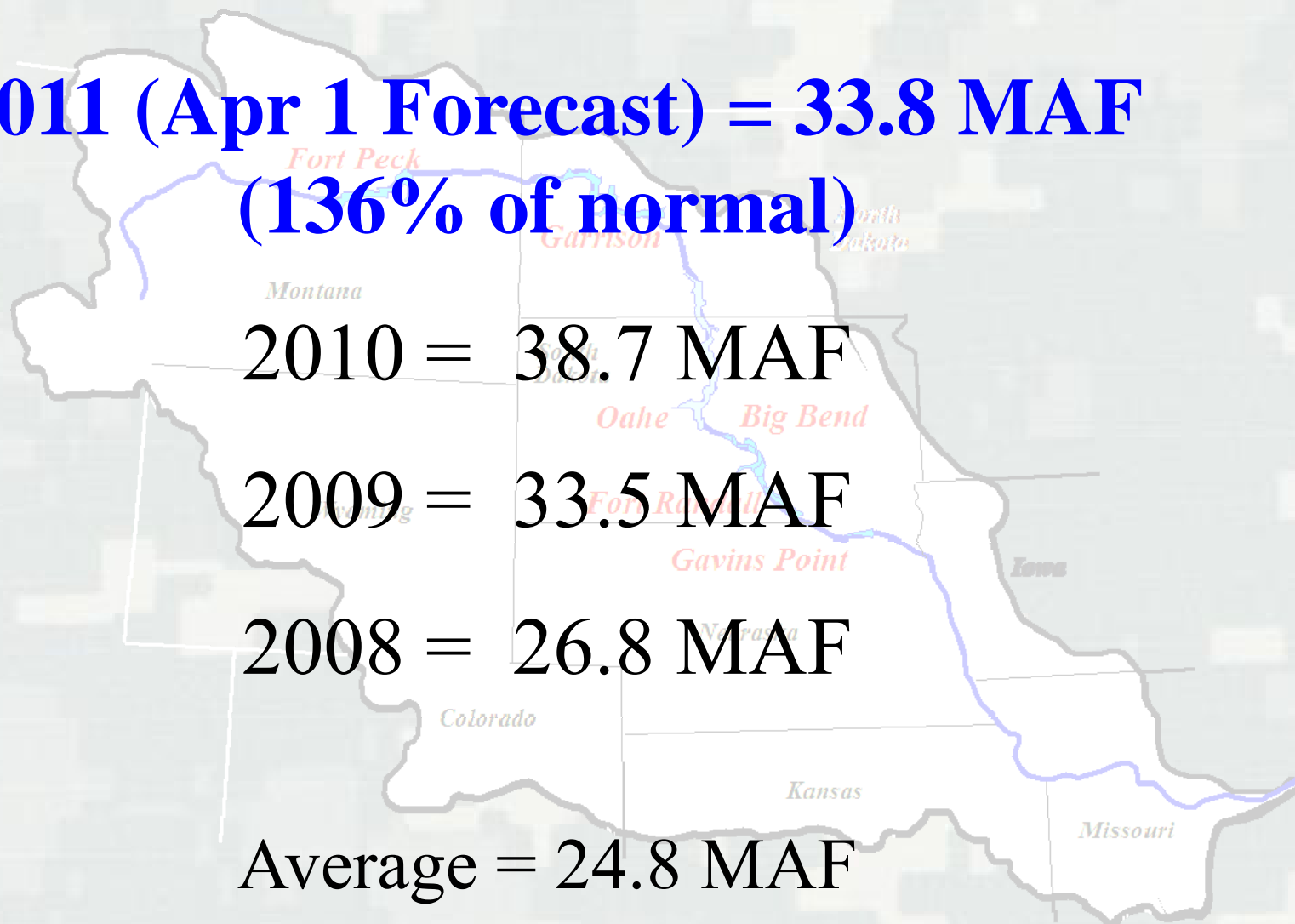
**2011 (Apr 1 Forecast) = 33.8 MAF
(136% of normal)**

2010 = 38.7 MAF

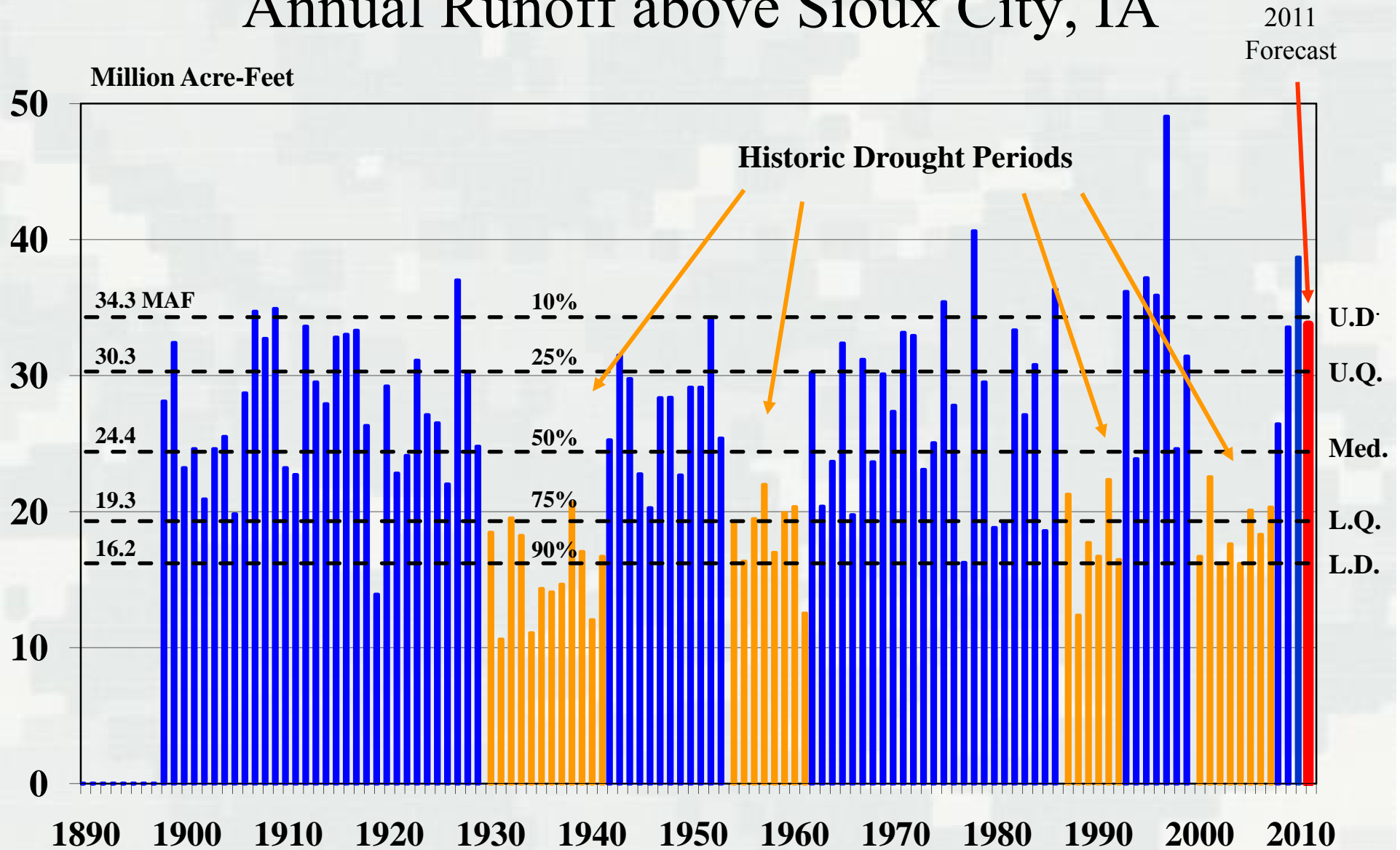
2009 = 33.5 MAF

2008 = 26.8 MAF

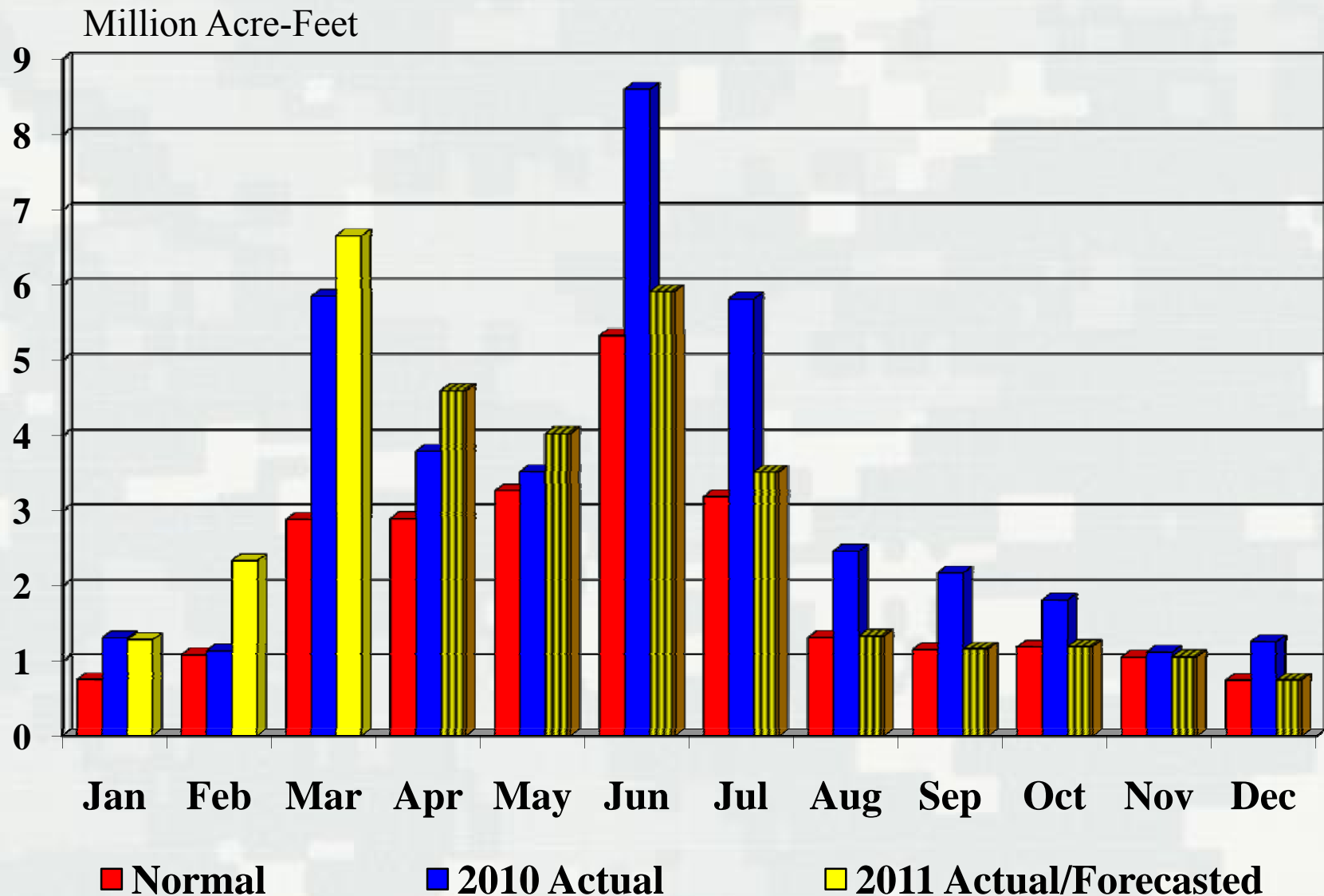
Average = 24.8 MAF



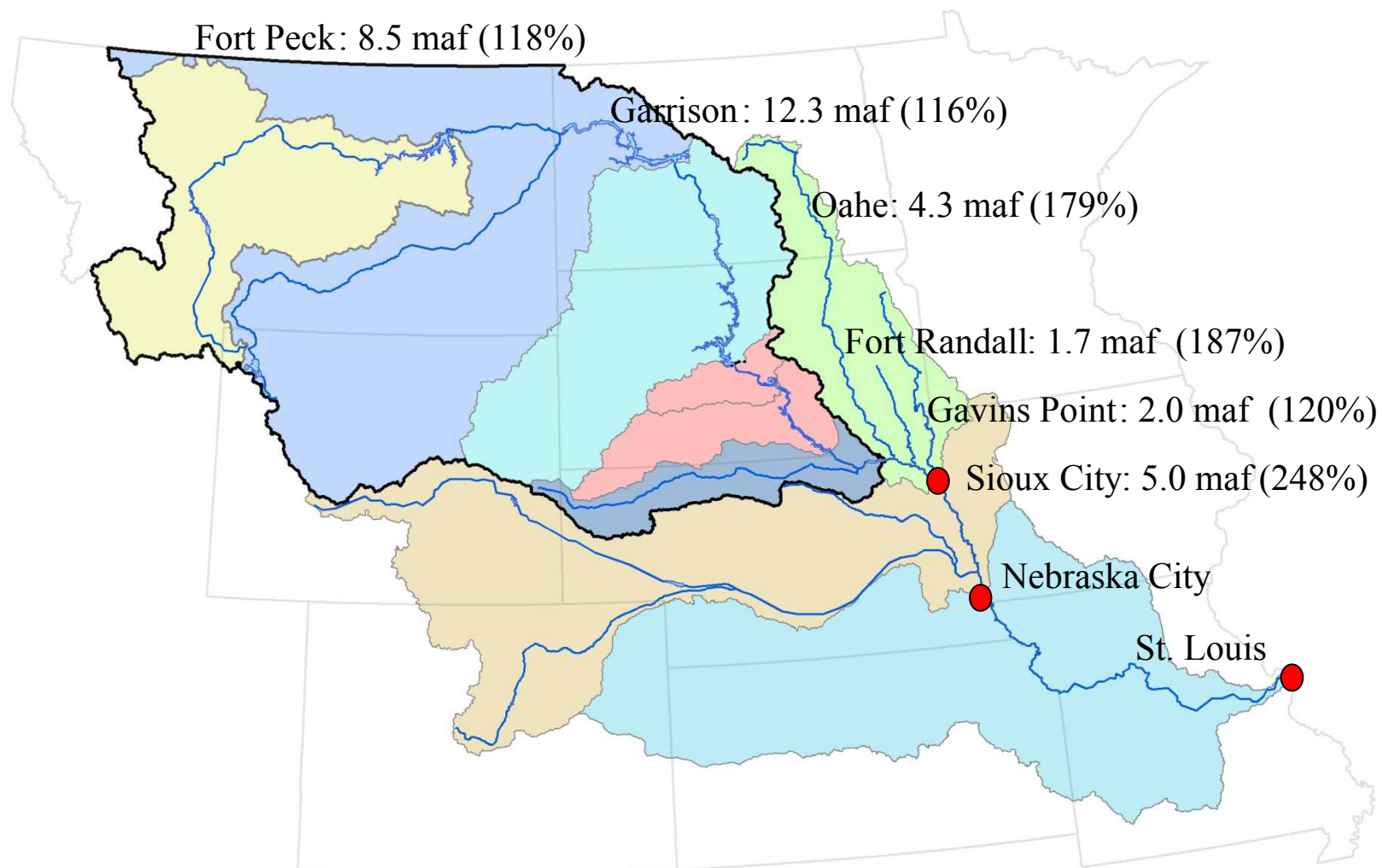
Missouri River Mainstem System Annual Runoff above Sioux City, IA



Missouri River Runoff above Sioux City 2010 Actual and 2011 Actual/Forecasted



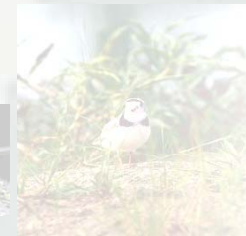
Missouri River Basin – 2011 Runoff Forecast



Service Level Increase

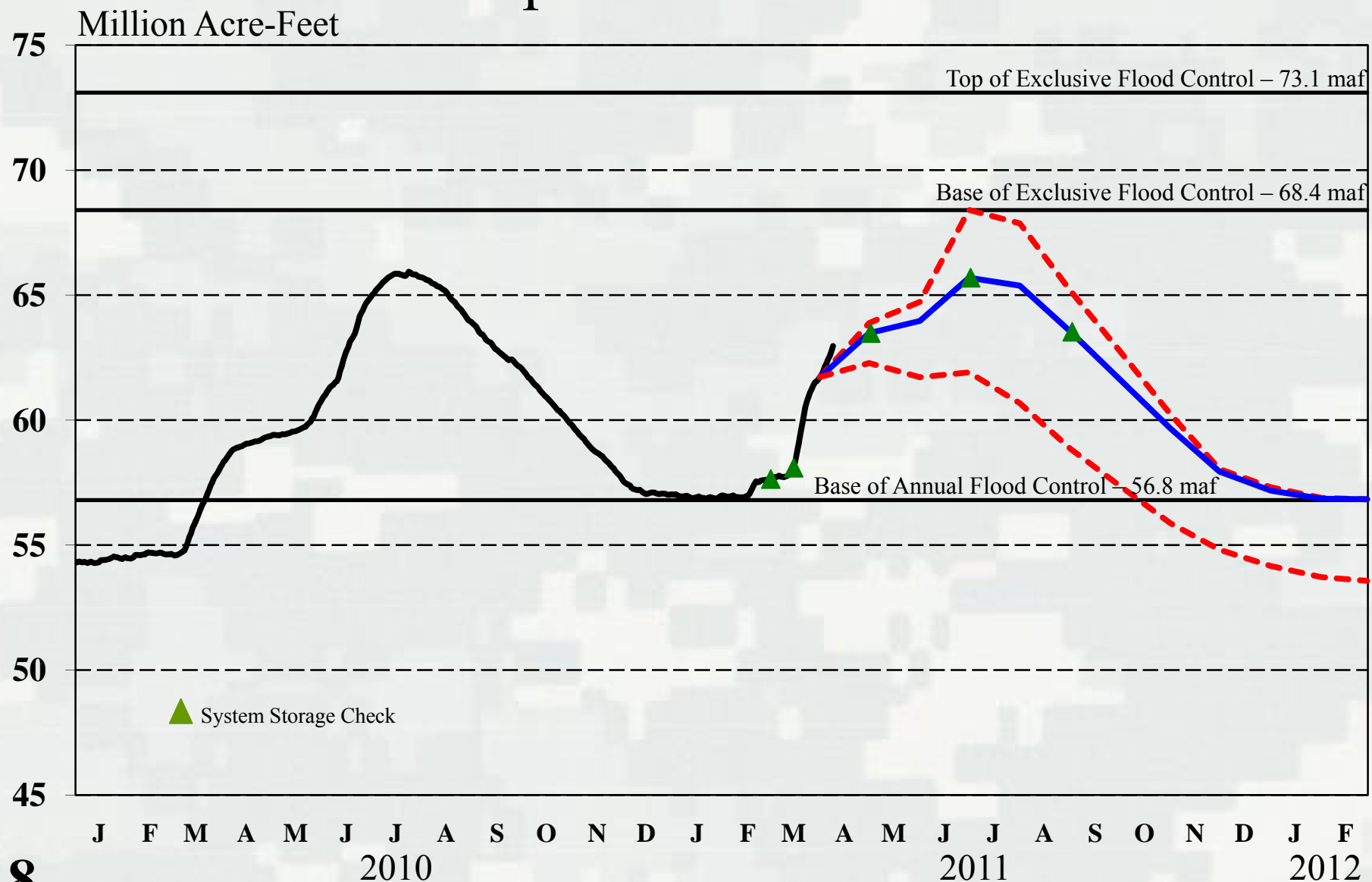
- Purpose
 - ▶ Evacuation of System flood storage
 - ▶ Longer evacuation period
- Master Manual Criteria
 - ▶ Observed System storage
 - ▶ Remaining forecasted runoff above Gavins Point
 - ▶ Available Storage in Reclamation reservoirs
- Service Level Adjustments

Expected Results for Authorized Purposes in 2011



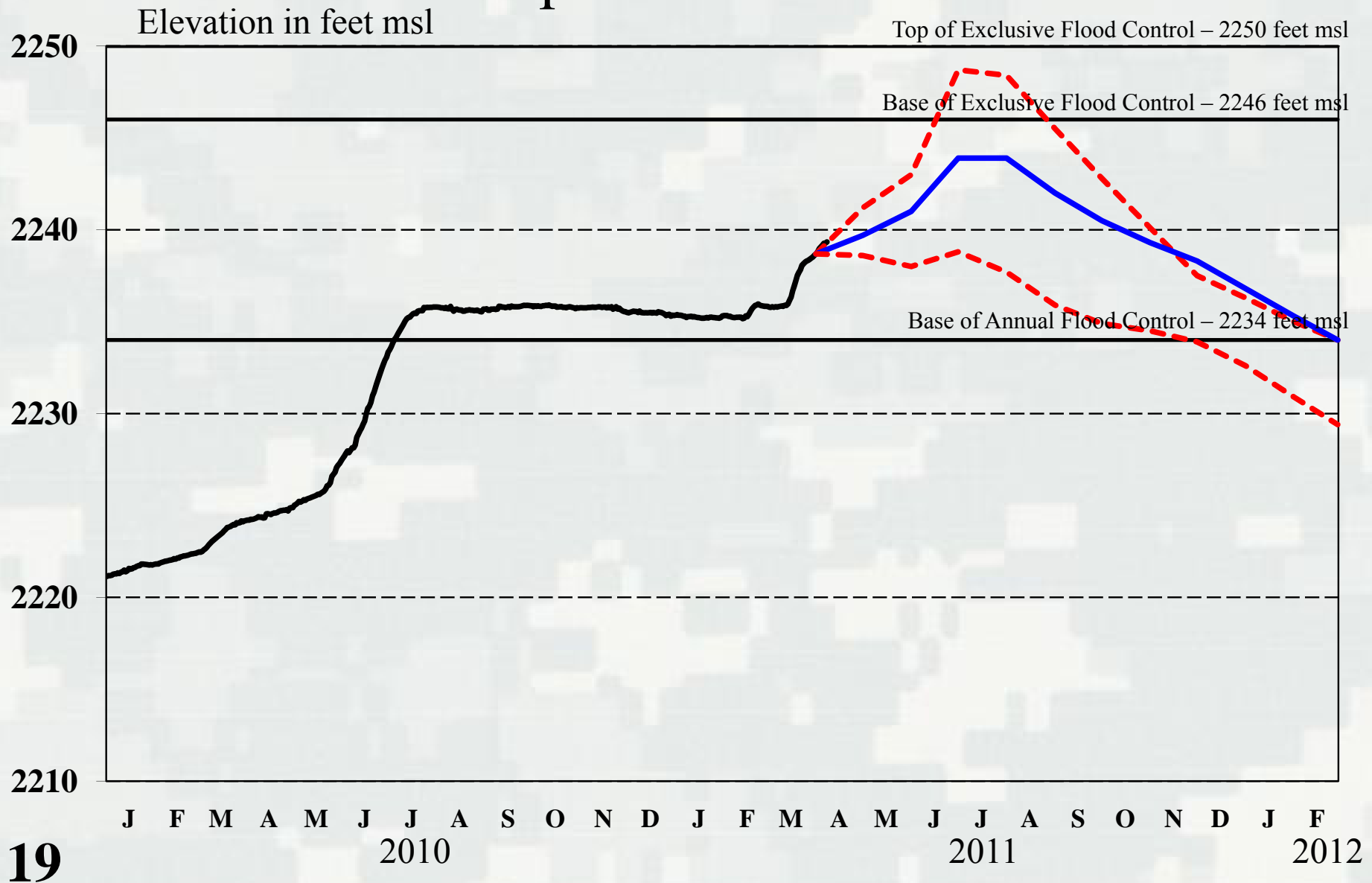
System Storage

April 1 Forecast



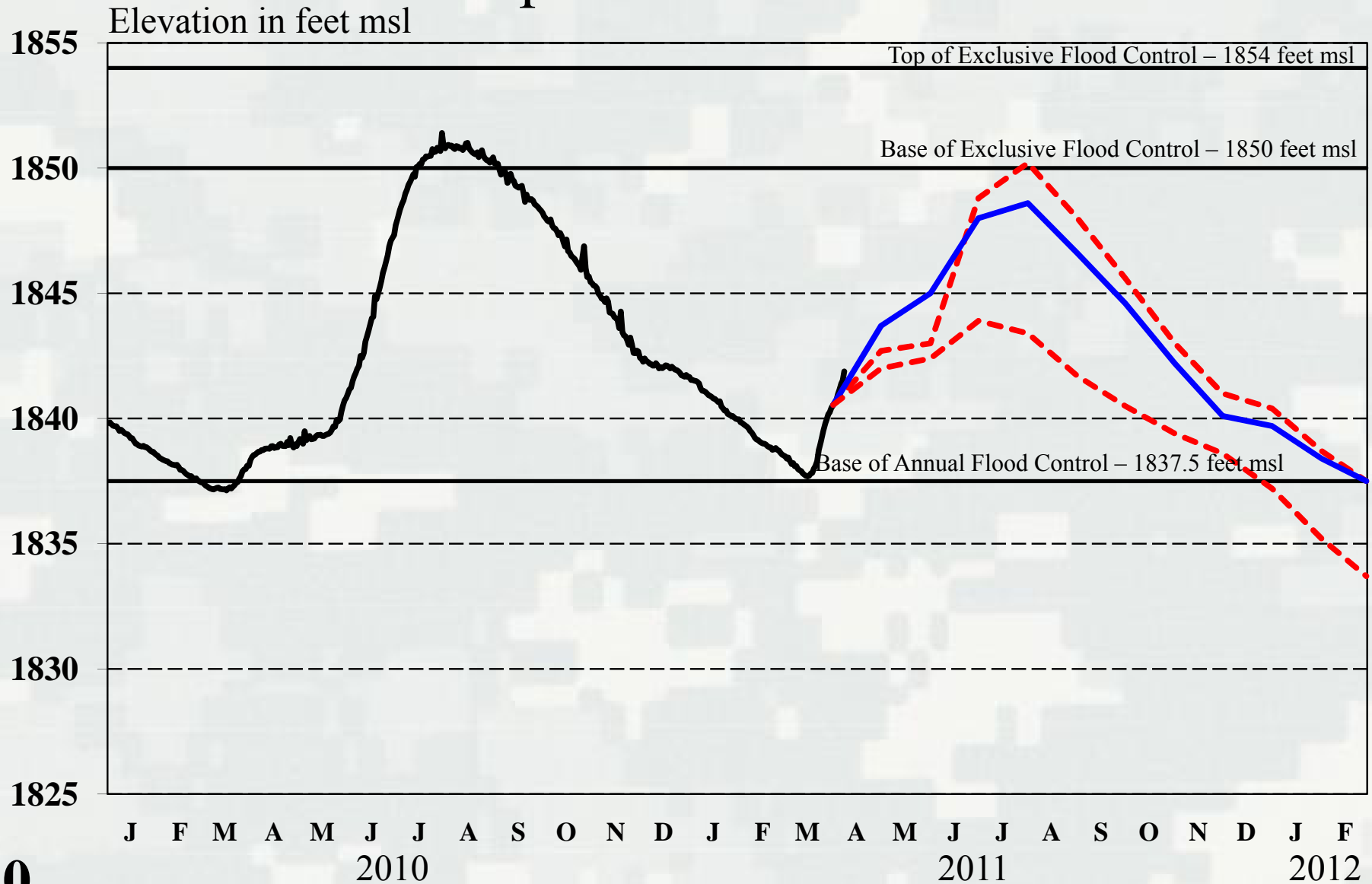
Fort Peck

April 1 Forecast



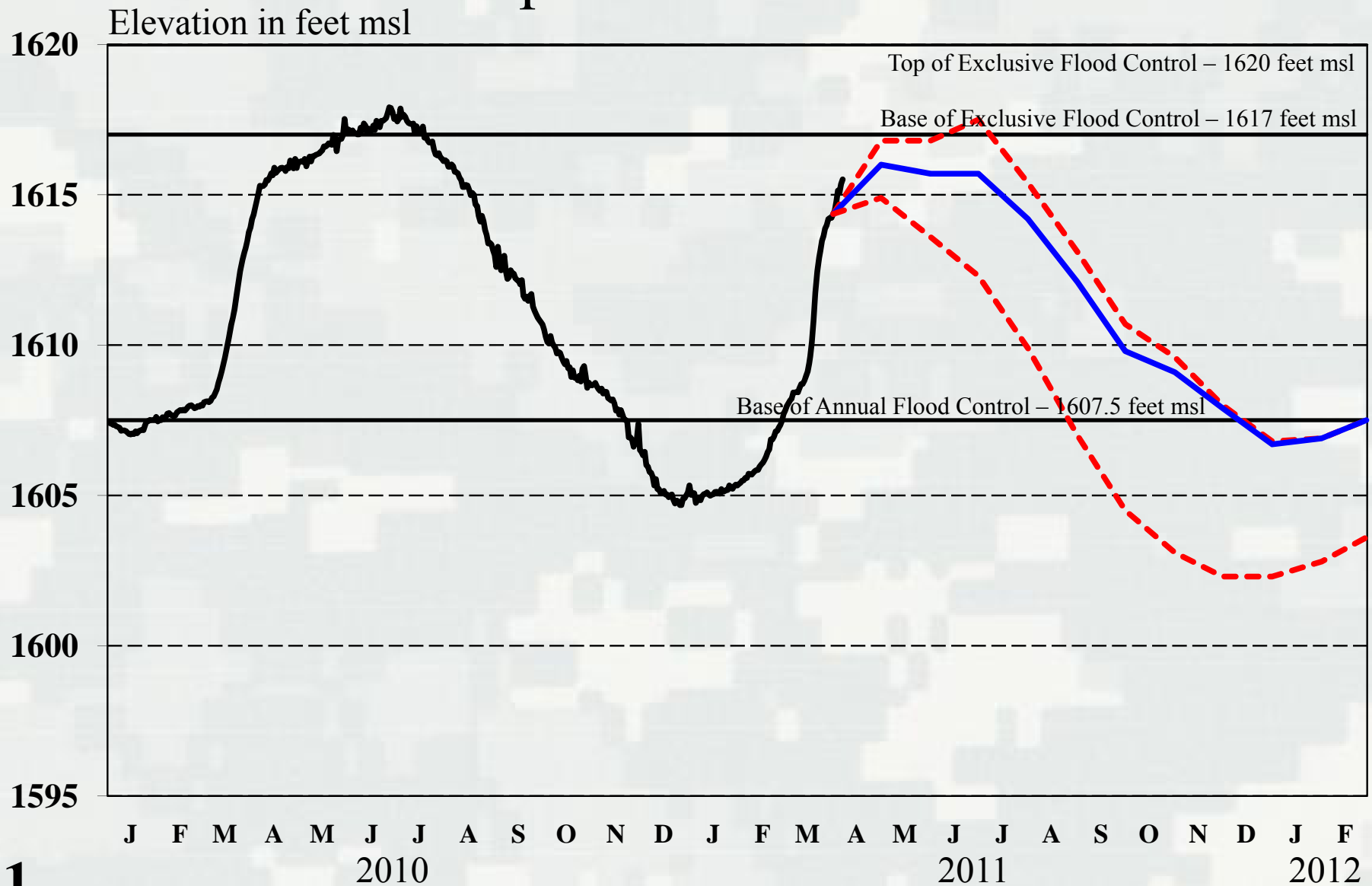
Garrison

April 1 Forecast



Oahe

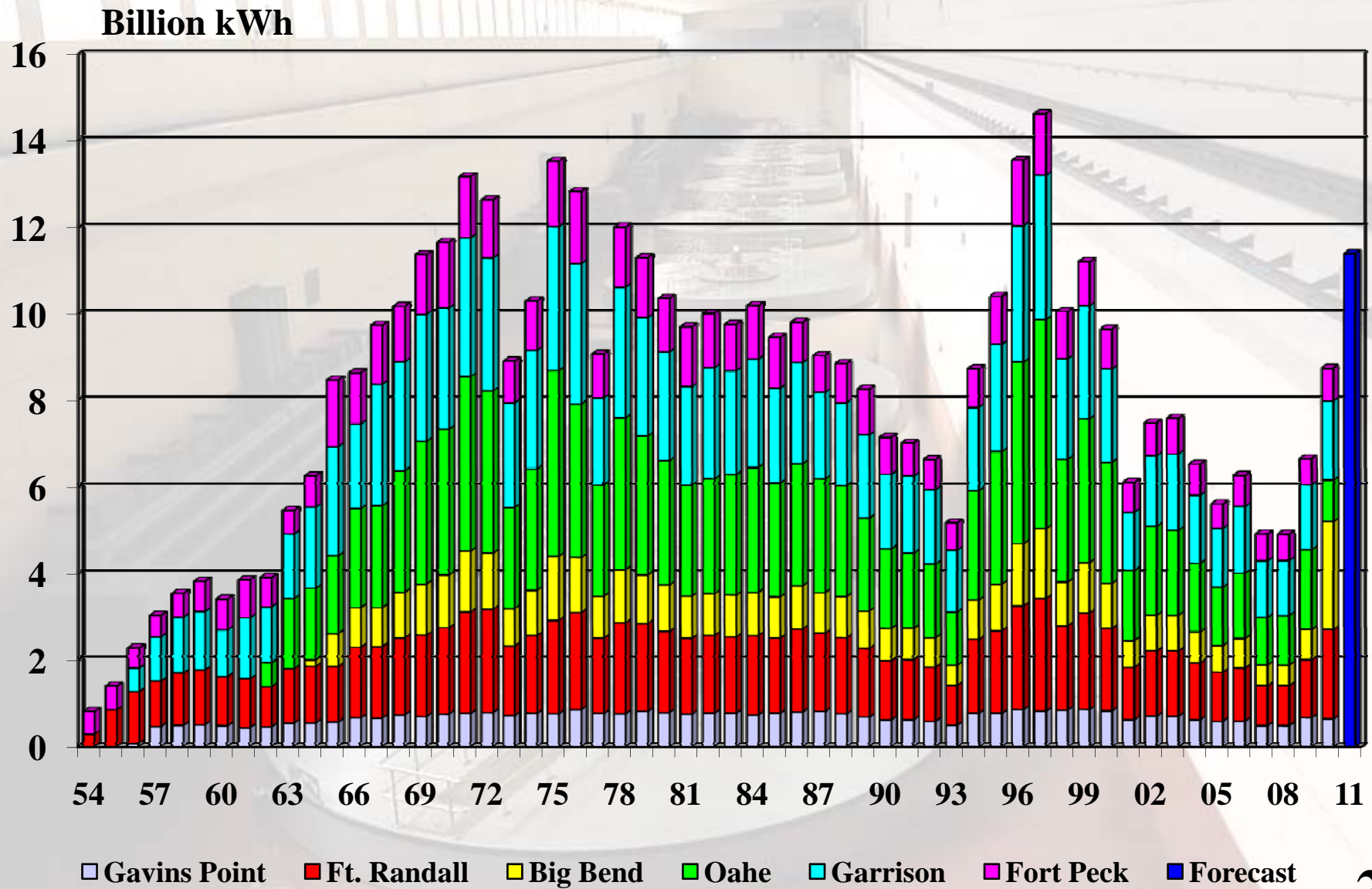
April 1 Forecast



Flood Control

- All flood storage space available at start of runoff season
- Significant plains snowpack
 - ▶ Below Gavins Point
 - High tributary runoff
 - No March spring pulse
 - ▶ Above Gavins Point
 - High tributary runoff
 - Utilizing portion of annual flood control zones
- Service Level Increased

Hydropower



Navigation

- Above full service flows
- Current targets
 - ▶ Full service + service level adjustment
 - ▶ Sioux City (41,000 cfs)
 - ▶ Omaha (41,000 cfs)
 - ▶ Nebraska City (47,000 cfs)
 - ▶ Kansas City (51,000 cfs)
- 10-day season length extension likely

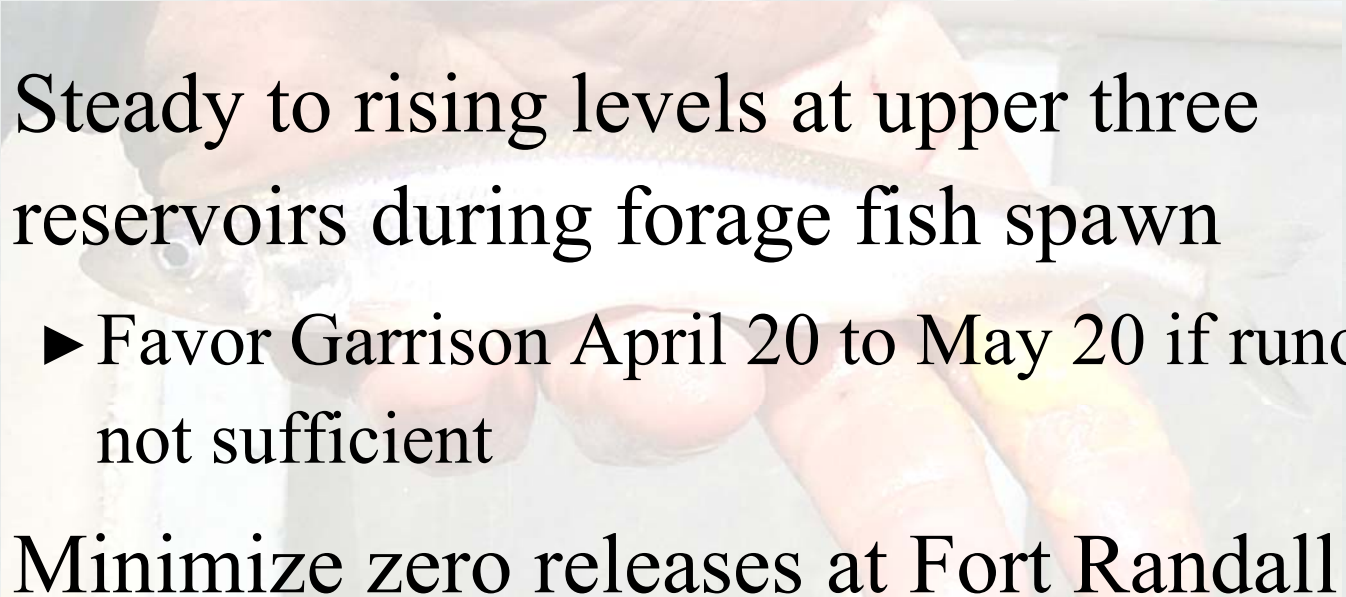
Water Supply – Water Quality

Irrigation – Recreation

- Normal to above normal elevations and releases
- No access issues expected



Fish and Wildlife

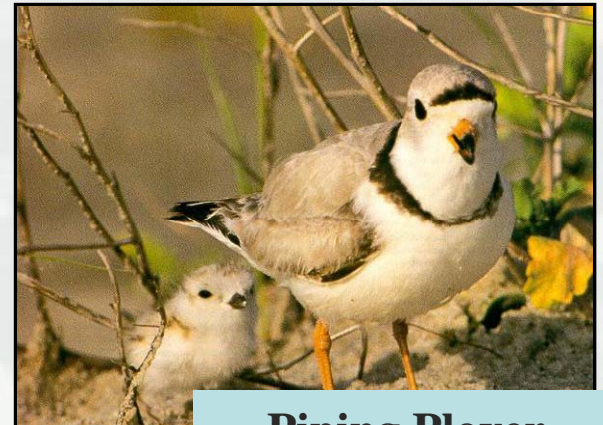
- 
- Steady to rising levels at upper three reservoirs during forage fish spawn
 - ▶ Favor Garrison April 20 to May 20 if runoff not sufficient
 - Minimize zero releases at Fort Randall

Endangered Species Act of 1973

Each Federal Agency shall... ensure that any action authorized, funded, or carried out by such agency... is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat...



Interior Least Tern
Listed "Endangered" 1986



Piping Plover
Listed "Threatened" 1986



Pallid Sturgeon
Listed "Endangered" 1990

Threatened and Endangered Species

Piping Plover and Least Tern

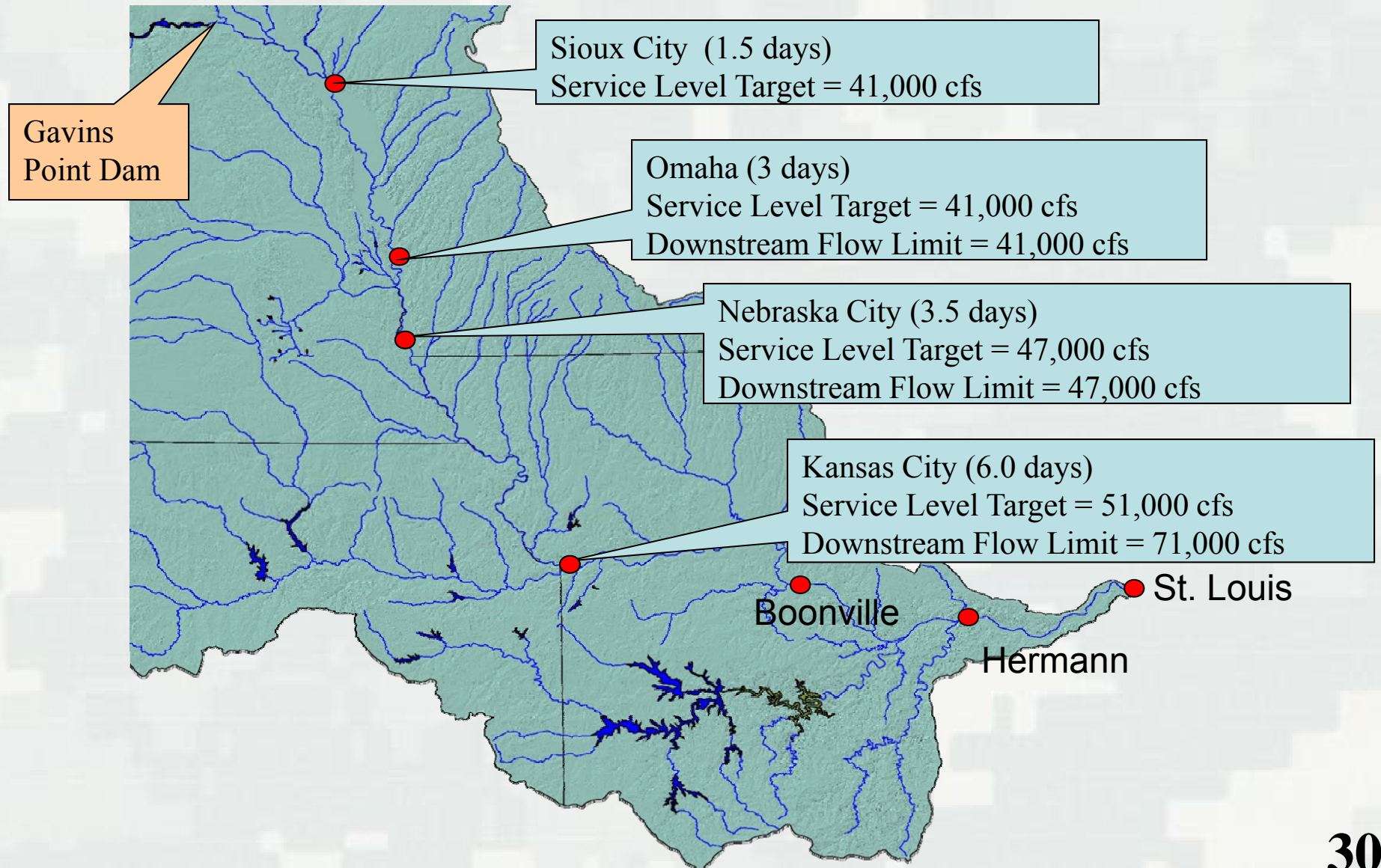
- Gavins Point
 - ▶ Steady release – flow to target
 - ▶ Cycle Gavins Point releases
- Intra-day peaking patterns – Garrison & Fort Randall
- Measures to minimize take

Threatened and Endangered Species

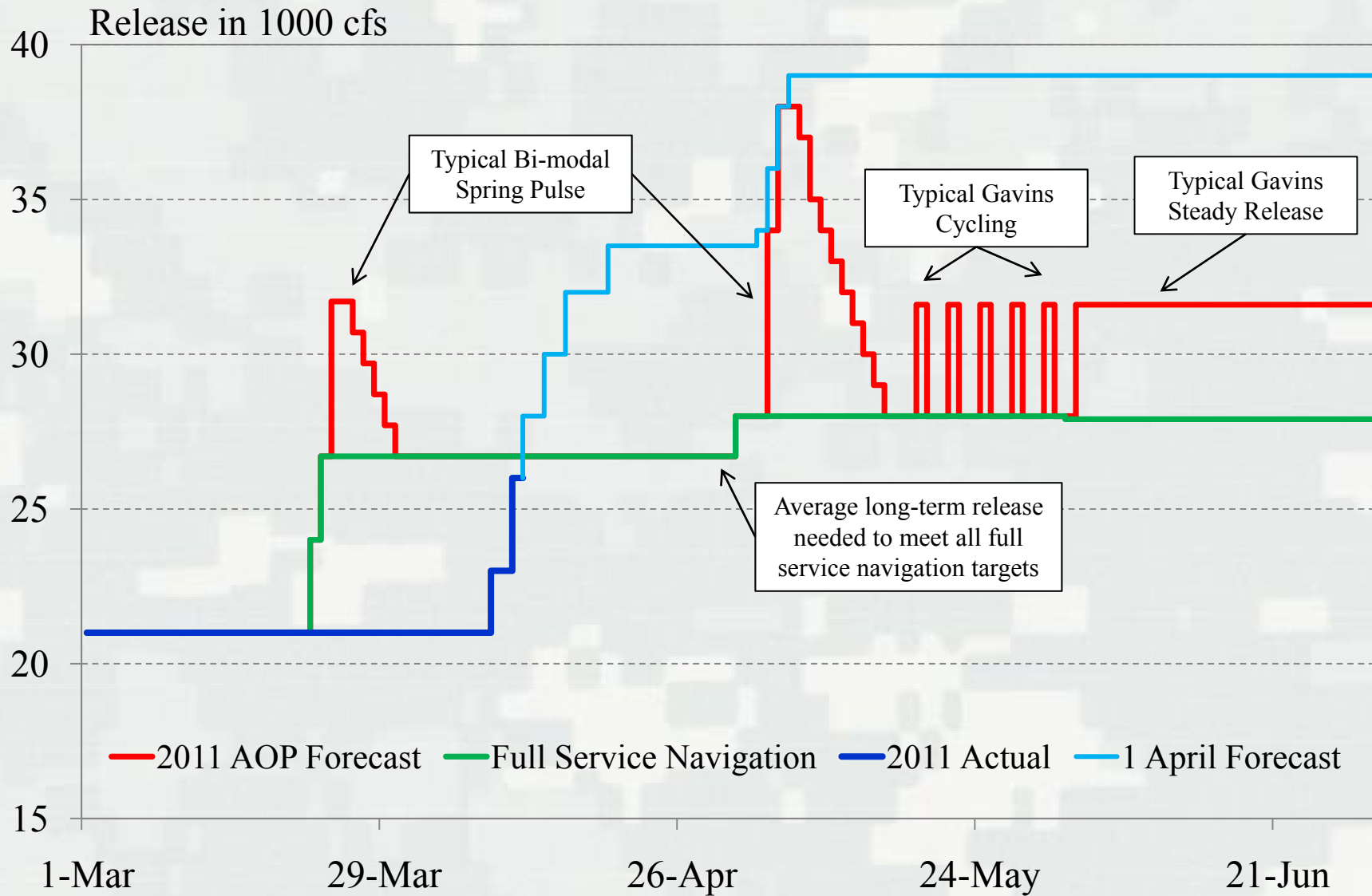
Bi-Modal Spring Pulse – Pallid Sturgeon

- 2003 Amended Biological Opinion – Reasonable and Prudent Alternative
- March – not implemented in 2011
- May – will not be implemented due to higher service level
- Monitoring in place
 - ▶ Biological, interior drainage, groundwater

Spring Pulse Downstream Flow Limits



Gavins Point Releases



Summary

- Above normal runoff
- Flood evacuation April to December
- Meet all authorized purposes

